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Models for rational $(\infty, 1)$*-categories*

An $(\infty, 1)$-category is a category enriched in spaces, possibly weakly. Our understanding of $(\infty, 1)$-categories has been advanced thanks to the development of various models for $(\infty, 1)$-categories, that is, mathematical objects that exhibit the structure of an $(\infty, 1)$-category. Two such models are complete Segal spaces, as introduced by Rezk, and Segal categories, as developed from the homotopical perspective by Bergner.

We introduce rational $(\infty, 1)$-categories, which are $(\infty, 1)$-categories enriched in spaces whose higher homotopy groups are rational vector spaces. We produce two models for rational $(\infty, 1)$-categories, rational complete Segal spaces and rational Segal categories. Our argument works for enrichment in general localizations of spaces, such as the v_n-periodic spaces of Heuts in unstable chromatic homotopy theory.